

What is claimed is:

1. An acoustic wave contact detecting apparatus comprising:

5 a substrate having a surface along which acoustic waves propagate;

an acoustic wave generating means;

a reflection array for causing the generated acoustic waves to propagate along the surface of the substrate;

10 a detector for detecting changes in the acoustic wave caused by an object contacting the surface of the substrate; and

a controller for determining the geometric coordinates of the object; wherein:

15 a spurious wave scattering means for diffusing spurious waves, which are generated accompanying the generation of the acoustic waves, is formed on the substrate.

2. An acoustic wave contact detecting apparatus as defined in claim 1, wherein:

20 the spurious wave scattering means comprises a reflection array formed of the same material as that of the substrate.

3. An acoustic wave contact detecting apparatus as defined in claim 1, wherein:

25 the acoustic wave generating means and the spurious wave scattering means are formed by printing.

4. An acoustic wave contact detecting apparatus as

defined in claim 2, wherein:

the acoustic wave generating means and the spurious wave scattering means are formed by printing.

5 5. An acoustic wave contact detecting apparatus as defined in claim 1, wherein:

the acoustic wave generating means and the spurious wave scattering means are formed by etching.

6. An acoustic wave contact detecting apparatus as defined in claim 2, wherein:

10 the acoustic wave generating means and the spurious wave scattering means are formed by etching.

7. An acoustic wave contact detecting apparatus comprising:

15 a substrate having a surface along which acoustic waves propagate;

a mode converting element;

a reflection array for causing the generated acoustic waves to propagate along the surface of the substrate;

20 a detector for detecting changes in the acoustic wave caused by an object contacting the surface of the substrate; and

a controller for determining the geometric coordinates of the object; wherein:

25 a diffusing portion for diffusing spurious waves, which are generated accompanying the generation of the acoustic waves, is formed on the substrate.

8. An acoustic wave contact detecting apparatus as defined in claim 7, wherein:

the diffusing portion comprises a group of randomly distributed diffusing protrusions.

5 9. An acoustic wave contact detecting apparatus as defined in claim 7, wherein:

the diffusing portion comprises a plurality of substantially parallel inclined lines, which are densely distributed in the vicinity of an edge of the substrate opposite
10 that at which the mode converting element is provided.

10. An acoustic wave contact detecting apparatus as defined in claim 7, wherein:

the diffusing portion is formed of the same material as that of the substrate.

15 11. An acoustic wave contact detecting apparatus as defined in claim 7, wherein:

the mode converting elements and the diffusing portion are formed by printing.

20 12. An acoustic wave contact detecting apparatus as defined in claim 7, wherein:

the mode converting elements and the diffusing portion are formed by etching.

13. An acoustic wave contact detecting apparatus as defined in claim 8, wherein:

25 the diffusing portion is formed of the same material as that of the substrate.

14. An acoustic wave contact detecting apparatus as defined in claim 8, wherein:

the mode converting elements and the diffusing portion are formed by printing.

5 15. An acoustic wave contact detecting apparatus as defined in claim 8, wherein:

the mode converting elements and the diffusing portion are formed by etching.

10 16. An acoustic wave contact detecting apparatus as defined in claim 9, wherein:

the diffusing portion is formed of the same material as that of the substrate.

17. An acoustic wave contact detecting apparatus as defined in claim 9, wherein:

15 the mode converting elements and the diffusing portion are formed by printing.

18. An acoustic wave contact detecting apparatus as defined in claim 9, wherein:

20 the mode converting elements and the diffusing portion are formed by etching.

19. An acoustic wave contact detecting apparatus as defined in claim 10, wherein:

the mode converting elements and the diffusing portion are formed by printing.

25 20. An acoustic wave contact detecting apparatus as defined in claim 10, wherein:

the mode converting elements and the diffusing portion are formed by etching.